

REMARKS

An Information Disclosure Statement is submitted herewith.

In the Office Action dated April 25, 2005, claims 1-18 were rejected under 35 U.S.C. § 102 over EP 1 102 405 (Herzeele).

The Examiner rejected all claims for anticipation by Herzeele (EP 1 102 405). In Herzeele, an offset is compensated by a selectable resistor which generates a signal inverse to the offset, which is added to the differential signal being measured, either by using a differential amplifier VCM to shift the signal, (fig 1) or using a fifth switched capacitor module (figs 2-6) within the sigma delta modulator SDM of the ADC. Which one of the selectable resistors to select, depends on a calibration step. Although the selectable resistors and the reference resistor share the same voltage source as the sensing resistor, the voltage drops across the reference resistor, the offset resistor and the sensing resistor are all different and the currents are different as the sensing resistor is not located in the same current path as the offset resistor and the reference resistor. This means that parasitic resistances such as contact bond resistances, which will generate a voltage offset proportional to current, will not be accurately compensated, as the signal being measured varies and therefore, the current varies.

This means that the prior art system requires a separate calibration step – see “calibration cycle” in lines 43 and 44 of column 6.

In contrast, according to some embodiments of the present invention, the resistors generating the offset compensation as well as the reference compensation are placed in series with the measuring resistor (see Figures 1 and 2 – common voltage driver) or in parallel (see page 5, lines 1 to 4 – common driving signal is the current), so as to share the same current or alternatively voltage path. This has now been covered in the independent claims in that a drive signal, *e.g.*, either current or voltage depending on the embodiment, has the same value for all the elements. This means that such parasitic resistances can be compensated more accurately and without additional complexity.

The advantages that may be obtained by some embodiments of the claimed structures and methods can be:

- a) Obtaining the results in a single cycle not requiring a calibration cycle. This improves speed.

- b) The correction signal is generated at the same time as the sensed signal is acquired so that there is an automatic updating of the comparison signals and hence provides improved resilience with respect to temperature drift and other transient phenomena.

For these reasons, the claims as amended are not anticipated by Herzeele. There is no suggestion in Herzeele or any other document of altering it to compensate for parasitic resistances, nor of the advantages of this, nor of how to achieve these advantages. Hence there is no incentive to alter Herzeele, and so the claims involve an inventive step over Herzeele. This conclusion is reinforced by the European search report of 6 August 2003 (attached), which considered that Herzeele was of background relevance only (category A) in relation to all the claims.


All the points raised by the Examiner have been dealt with, all the claims are acceptable, and reconsideration is requested.

The Commissioner is authorized to charge any additional fees and/or credit any overpayment to Deposit Account No. 20-1504 (BGC.0003US).

Respectfully submitted,

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